CHORNOBYL CHILDHOOD ILLNESS PROGRAM

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Thirteenth Quarterly Report
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INTRODUCTION

The purpose of this Quarterly Report is to advise USAID on the progress of the Chornobyl Childhood Illness Program (CCIP) during the period May 13, 2001 - August 12, 2001. This Report will provide a review of the activities related to the Objectives, Activities and Indicators of Outcome that were presented in the CCIP's Third Year Implementation Plan and Revised Request for a No-Cost Extension.

1.0 INSTITUTIONAL ACTIVITIES THAT SUPPORT BOTH PROJECT COMPONENTS

1.1 Establish Ukrainian American Health Centers

As of November 1999, all four Ukrainian American Health Centers (UAHC) have been established and are fully operational.

In December 2000, CCIP began negotiations with Dr. Anatoly Cheban and the Kiev City Public Organization for Assistance to National Health Preservation of Ukraine (KCPO), a PVO established by members of Endopolymed, to operate a fifth CCIP mobile screening unit. A Memorandum of Understanding was finalized and signed in April 2001. KCPO, through Professor Cheban, will also provide in-country technical support to the CCIP as well as quality control of screening data. The CCIP has purchased a Russian van, ultrasound machine, image recorder, one laptop and one desktop computer, a fax machine and a copy machine for KCPO.

KCPO is a Ukrainian registered PVO and will work in Kiev Oblast and elsewhere in the country where children at risk are located. It is anticipated the fifth mobile unit will focus a considerable amount of its efforts in Rivne Oblast due to the large number of children in the target population residing in that oblast. In addition, the fifth mobile unit will visit Slavutych to screen at-risk children living in that city and to obtain screening information on a comparison group whose families moved to the contaminated area after the disaster.

1.2 Finalize Relationship with the Ministry of Health

This task has been completed with the signing of a Memorandum of Understanding (MOU).

1.3 Finalize the CCIP Policies and Procedures Manual

Although this task has been completed and the Manual translated into Ukrainian, the Manual is a document that is continually being revised and updated as required.

1.4 Expand Information Activities Through School Health Programs.

There was no activity under this component during the quarter. Dr. William Schwartz and his colleagues, Drs. Postipovov and Vololovets, Professors of Pediatrics from Kyiv Medical

University, will continue to work with school health officials to provide instruction on techniques for recognizing health and psychosomatic problems among school children that may be associated with post-Chornobyl psychosocial trauma.

1.5 Increase Public Awareness about Thyroid Cancer and Psychosocial Effects in Chornobyl Victims and the Need for Screening Children

The objective of the Public Awareness Campaign is to disseminate information about the CCIP Program and to encourage citizens' participation in the thyroid screening program.

The Public Awareness Brochure was finalized and approved by USAID last year. The Brochure was printed (200,000 copies) and is being distributed at relevant oblast events and through the schools, local sanatoriums, the Ukrainian-American Health Centers, and the mobile screening teams. We have contacted UNICEF to inquire whether they would be willing to distribute some of our brochures with their iodized salt campaign material. In return, we would distribute their iodized salt brochures to the children we are screening in the four target oblasts. UNICEF was happy to comply with this request, but needed to print new brochures. It is our understanding that as of this Report date, the new brochures have not yet been printed. We will continue to follow-up with this program during Year Four.

The CCIP video, developed in cooperation with the Ukrainian television company "Studio Plus," was reviewed and approved by USAID and the CCIP. The video was reproduced and distributed to the four UAHCs as well as to local oblast television stations. The video is available for public viewing at the Ukrainian-American Health Centers.

1.6 CCIP Management and Sustainability Conference

Although no date has been set, the third CCIP Sustainability Meeting is tentatively scheduled for the Fall of 2001. Only the five Directors and key members from their staff will attend so that they can focus primarily on sustainability issues. Several of the CCIP American team members will attend and we also plan to invite Ms. Lyuba Palyvoda from Counterpart Alliance.

CCIP with assistance from Ms. Palyvoda will continue to work with the UAHC Directors to help them develop an NGO in each of the participating UAHCs. We are focusing on NGO registration, organizational development and fund raising. The proposed Sustainability Meeting will be held in a "workshop" environment so that oblast participants can obtain one-on-one practical experience.

1.7 Attendance at Two International Conferences and an Invitation to a Third Conference

The first international conference, "The Health Effects of the Chornobyl Accident: Results of 15 Years' Follow-up Studies," was held in Kyiv June 4 - 8, 2001. Two formal papers were accepted by the organizing committee for presentation at the conference, while a third paper

was presented as a poster. The title of the first paper is: A Holistic Approach For Dealing With the Long Term Health Effects of the Chornobyl Disaster" and was presented by Dr. George Contis during the Plenary Session on June 4. The second paper, "Thyroid Screening of Children at High Risk for Thyroid Neoplasia after the Chornobyl Accident - A Preliminary Report" was presented by Dr. Thomas Foley later in the week. The poster entitled "Screening, Referral, and Treatment of Psychosocial Abnormalities of Children after the Chornobyl Accident" was presented by Dr. Irina Grishayeva. This international conference was sponsored by the Ukraine Scientific Center for Radiation Medicine. Copies of these papers are Attachment One and Two of this Report.

Both Drs. Contis and Foley traveled to Minsk, Belarus on June 9 to attend the 3rd International Meeting on "Biological Effects of Low Dose Radiation (Molecular and Genetic Effects of Low Dose Radiation)." The meeting was sponsored by The Belorussian Committee on The Children of Chornobyl and USAID. The first paper, "A Holistic Strategy for the Screening and Treatment of Ukrainian Adolescents at Risk for Thyroid Cancer and Depression After the Chernobyl Disaster" was presented by Dr. George Contis. Dr. Thomas Foley presented a paper similar to the one he presented in Kiev, and discussed the thyroid abnormality findings of the CCIP. The travel costs of attending this conference were paid by the sponsors and were not charged to the CCIP. A copy of Dr. Contis' paper is Attachment Three.

CCIP was asked to present a paper at the Fifth Annual Scientific and Practical Conference entitled "2001: International Cooperation in Chornobyl" to be held in Slavutych, Ukraine, September 12 - 14, 2001. Dr. George Contis agreed to present a paper and his abstract entitled "The Health Aftereffects on Children Exposed to Chornobyl Radiation Fallout" was accepted.

1.8 CCIP Publication in USAID Frontlines

An article entitled, "USAID'S Chornobyl Childhood Illness Program Addresses Long-Term Problems from a Nuclear Disaster" was accepted for publication in the March/April 2001 issue of Frontlines. This issue of Frontlines was published and distributed in June 2001.

2.0 THYROID CANCER COMPONENT: IMPROVE THE DIAGNOSIS AND MANAGEMENT OF THYROID CANCER

2.1 Define the Size and Location of the Target Population at Risk

The size and location of the target population at risk have been identified with the assistance of the GOU’s Ministries of Emergencies and Health. Data continue to be provided by each Oblast Health Administration Office on the names of the victims exposed to nuclear contamination, and the name and location of the raion schools, clinics and summer camps where the screening will occur. Based on this information, the Director of each UAHC prepares the

schedules for the mobile team screening visits. CCIP's Deputy Director has continued to work closely with the UAHC secretaries to ensure that the scheduling process becomes more effective.

As can be seen by the number of children screened, as presented in Table 1 below, the UAHCs' scheduling process has improved when compared to last year. CCIP continues to exercise care when scheduling sites so that there is minimal time spent in driving from one screening location to the next.

2.2 Implement the Screening Program for Thyroid Cancer

One of the most important accomplishments of the CCIP for this reporting quarter is the continued increase in the number of children screened. As of September 3, 2001, a total of 70,184 children have been screened by ultrasound and 69,303 by the Children's Depression Inventory (CDI) in the four target oblasts. A summary of screening activity to date is provided in Table One.

TABLE 1: SUMMARY OF CCIP OBLAST SCREENING ACTIVITIES

OBLAST	TOTAL SCREENED: THYROID	THYROID ABNORMALITIES IDENTIFIED	TOTAL SCREENED: PSYCHOSOCIAL	PSYCHOSOCIAL ABNORMALITIES IDENTIFIED
VOLYN	21,310	2,368 (11.1%)	20,790	2,438 (11.7%)
RIVNE	15,542	888 (5.7%)	15,182	2,832 (18.7%)
CHERKASSY	14,665	922 (6.3%)	14,665	1,868 (12.7%)
ZHYTOMYR	18,667	1,343 (7.2%)	18,666	1,971 (12.5%)
TOTAL	**70,184**	**5,521 (7.9%)**	**69,303**	**9,109 (13.1%)**

To date, three children (one each from Cherkassy, Rivne and Volyn Oblasts) have been found to have thyroid cancer. A fourth child from Rivne who was attending a summer camp, was diagnosed with possible thyroid cancer. After he returned to his home, however, which was outside of the targeted raions in Rivne, the UAHC did not receive further information on his status. Our Rivne UAHC secretary is checking on his condition and what treatment was provided.

The percentage of children with benign and malignant abnormalities (where normal = 0.1 percent) is consistent with the percentage reported from radiation contaminated areas in other countries. The incidence of four children with thyroid cancer among 70,184 (1:17,546) screened is considerably higher than the 1:1-2 million incidence among populations not exposed to nuclear fallout.

Table 2 shows the number of thyroid abnormalities identified. The thyroid is considered abnormal when an ultrasound image shows solitary thyroid nodules, multiple thyroid nodules or other abnormalities such as diffuse enlargement, absent lobe, ectopic location of the thyroid or abnormal shape of the gland. Of particular interest is the number of children with single and

multiple nodules. Endocrinologists have recently suggested that these lesions may be precancerous. For this reason, we believe that all children we have screened who have been found to have nodules will require periodic screening for the rest of their lives. This finding will have important implications not only for the individual Oblast Health Administrations, but for the Ukrainian Government as well.

TABLE 2: SUMMARY OF CHILDREN WITH THYROID ABNORMALITIES

OBLAST	NUMBER WITH SOLITARY NODULES	NUMBER WITH MULTIPLE NODULES	NUMBER WITH OTHER THYROID ABNORMALITIES
VOLYN	214	141	2,013
RIVNE	487	171	230
CHERKASSY	324	41	557
ZHYTOMYR	211	96	1,036
TOTAL	**1,236**	**449**	**3,836**

Please note that the difference between the children with abnormalities in Table 2 and the total number of abnormalities in Table 1 is due to a number of children having both a single nodule or multiple nodules, plus another thyroid abnormality.

2.2.1 Provide Ultrasonography Training for Physicians

The mobile team ultrasonographers have been trained on the Hitachi ultrasound machines purchased for the CCIP. While visiting Ukraine, Dr. Thomas Foley continues to work with the ultrasonographers to ensure that the physicians are performing adequately, and that the data collected are standardized across the four oblasts. His latest visit was in June 2001 and his next trip will be in the Fall of 2001.

As Dr. Cheban is now part of the CCIP, he will begin to work with the UAHC ultrasonographers to ensure that screening and data collection quality control is maintained.

2.2.2 Finalize Data Formats and Patient ID Numbering System

The data entry forms and the CCIP database for tracking the children screened were finalized last year and are now being used in all four oblasts. The same patient ID numbering system and data formats will be utilized by the fifth mobile team.

2.2.3 Purchase Vans, Office Equipment and Ultrasound Equipment for the UAHCs.

The equipment for the fifth mobile team has been purchased. All equipment, with the exception of the Hitachi Ultrasound, has been cleared from Ukraine Customs. We expect to finalize the paperwork and clear the Ultrasound machine by late September 2001. All other equipment is now located in Kiev at the Kiev City Public Organization for Assistance to National Health Reservation of Ukraine, under the supervision of Dr. Anatoly Cheban.

2.3 Strengthen the Referral System for Patients with Thyroid Cancer

Referral forms for the thyroid and psychosocial components were amended last year and are now being used by the mobile screening units in all oblasts.

Bi-monthly referral reports are now being prepared by each UAHC secretary and collated by our CCIP Computer Specialist and Administrative Assistant. Each report contains the names of the referred child, the type of referral made, and the raion or oblast health organization to which the child was referred. It is the responsibility of the UAHC secretary to contact the family, or if direct family contact is not possible, to contact the appropriate school officials, to determine whether the child and family followed through with the referral. The referral report also contains information on the diagnostic and/or therapeutic assistance provided by the health institution. We are monitoring whether the child and family received financial assistance for travel costs associated with the referral. We have also begun to provide a small financial incentive to the referral physician (endocrinologist) and/or psychologist for each child seen for a referral examination.

2.4 Strengthen the Thyroid Cancer Registry

Once the screening programs were operational in each oblast, it was our plan to hire a short-term data management and network communication advisor to evaluate the existing Thyroid Cancer and Screening Database at the IEM. Our intent was to refine and expand the existing Thyroid Cancer Registry for Ukraine. Now that the MOU with the Institute of Endocrinology and Metabolism has been cancelled (see Section 1.2 of the Second Annual Report), we will postpone this task until we discuss with the MOH our options regarding Ukraine's Cancer Registry.

2.5 Reevaluate and Modify the Disease Management Protocol

Dr. Foley prepared the algorithms for the management of thyroid cancer and other thyroid diseases which the screening teams will encounter. These algorithms were incorporated into the Policies and Procedures Manual, and discussed with the oblast endocrinologists during the March 2000 CCIP Management Conference.

3.0 PSYCHOSOCIAL ILLNESS COMPONENT: IMPROVE THE DIAGNOSIS AND MANAGEMENT OF PSYCHOSOCIAL PROBLEMS

3.1 Strengthen the Psychosocial Institutions at the Central Level

3.1.1 Continue Working with the Medical University of Kyiv to Provide Training for School Health Officials and to Modify Training Materials

As mentioned in Section 1.4, Dr William Schwartz continues to oversee the training program and modification of training materials to improve the ability of school health officials to identify problems related to thyroid disease. We anticipate that he will supervise one additional follow-up training session during the fourth year of the Program.

3.1.2 Continue Psychosocial Screening Program Using the Childhood Depression Inventory (CDI) as the Primary Screening Tool for Children in Target Oblasts.

The use of the Children's Depression Inventory (CDI) continues to be an integral part of CCIP's psychosocial screening program and its holistic approach to the child victims of Chornobyl. The psychosocial workers who use the CDI have found it easy to work with and simple to analyze. Based on the results of the CDI, as well as one-on-one interviews with children by the mobile team psychologists, children with depression are referred to local institutions.

The psychosocial screening program continues in all four oblasts (the results are summarized in Table 1 above). As the data show, approximately 13.1 percent of all children examined are found to be suffering from depression and have been referred to local psychologists and school psychologists/physicians for further diagnosis and treatment. With the addition of a third psychologist to each mobile team, the gap between the numbers screened for thyroid abnormalities and psychosocial abnormalities has diminished. In addition, the psychologists provide immediate crisis intervention counseling to children found to have moderate to severe depression. While crisis intervention was not part of CCIP's initial program design, we have now realized that counseling during the screening process is one of the CCIP's most valuable support activities provided to the children at risk.

Dr. Arthur Pressley (Drew University) visited Ukraine during July, 2001. During this visit, one of his tasks was to continue to work with CCIP's Dr. Irina Grishayeva in analyzing the results of the CDI exams, and to address the validity and reliability of the instrument. He also met with the mobile screening psychologists to continue their training. The focus of his visit, however, was to begin training lay people so that they may provide mental health services to rural communities. This training event established the groundwork for this aspect of the Psychosocial Illness Component. Dr. Irina Grishayeva and Dr. Pressley will continue to work with these individuals over the next year to ensure they are able to pursue the goals of the program after funding for the CCIP ends.

3.1.3 Identify Oblast and National Centers to Which Children with Psychosocial Problems Can Be Referred. Integrate These Centers Within the Referral System for Child Victims of Chornobyl

In light of the large number of children who on screening are found to suffer from depression, Drs. Michael Christensen, Robert Chazin and Irina Grishayeva, in collaboration with their Ukrainian colleagues, have identified several centers where the children with psychosocial disorders may be referred. Children are initially referred to the raion level psychological centers. For more complex problems, referrals are made to the oblast psychosocial centers, depending on individual needs.

As mentioned in Section 2.3 above, we are using our computerized referral reporting system to monitor referrals made by the mobile teams. As mentioned in previous reports, one problem which we have encountered is the stigma associated with psychosocial disease. We have also been told that the children are reluctant to tell their parents about their depression because they fear they may not be allowed to seek professional help. These may be factors keeping children from obtaining follow-up care from a local psychologist. As a result, we are closely monitoring the consultant reports coming in from psychologists to whom our teams are referring children with psychosocial problems.

3.1.4 Integrate the Psychosocial Screening Database with the Thyroid Screening Database

The psychosocial screening database was successfully integrated with the thyroid screening database during Year Two.

3.1.5 Psychosocial Training Programs During This Quarter

Drs. Robert Chazin and Meredith Hanson from Fordham University presented a reinforcement psychosocial training program for professionals from the four target oblasts. The title of the course was "Brief Treatment for Depressed Adolescents" and was held in Zhytomyr during the second week in June 2001.

An updated Training Summary Table is Attachment Four of this Report.

3.2 Initiate and Introduce Democratic Community Psychology

The concept of "Democratic Community Psychology" will continue to be discussed during future reinforcement training courses offered to the staff of the Social Service for Youth Centers in the four participating oblasts and to the staff of the UNESCO Centers. The intent is to overcome professional-client distinctions and to promote peer counseling in the training of paraprofessionals who will serve as mental health promoters. While these two organizations were enthusiastic about our Program, they are "facility based" and not able to provide outreach services to rural communities and the referral support necessary to help all of the affected children.

We have begun to rework the "Democratic Community Psychology" training program. As mentioned above, Dr. Arthur Pressley began working with a group of lay professionals and community leaders from the four target oblasts during July. It is anticipated that these people will become the first contact for depressed children in their communities. We believe this concept is important for the sustainability of the psychosocial component of the CCIP. Therefore, we will continue to provide reinforcement training to local representatives from each oblast to ensure that they, in turn, can work with and train leaders from local communities to offer counseling to children experiencing depression.

4.0 ADMINISTRATIVE ISSUES

4.1 Visits to Ukraine by CCIP Team Members.

Drs. Thomas Foley from the University of Pittsburgh and George Contis from MSCI visited Ukraine during June 2 - 9, 2001. A number of operational and administrative issues were discussed, several of which have been detail above. They also presented papers at the International Conference in Kiev, and from Ukraine, traveled to Belarus. Drs. Foley and Contis also met with USAID officials to discuss a number of Program issues.

4.2 Screening in Slavutych

In January 2001, USAID gave formal permission for one of the CCIP mobile units to screen children in the target population who live in Slavutych, Chernigiv Oblast. Dr. Cheban will make this his first screening task as soon as the Hitachi Ultrasound is cleared from Ukraine Customs.

4.3 Resignation of Ms. Oksana Shulak

Ms. Oksana Shulak, our Secretary from Rivne resigned in August 2001. We are in the process of interviewing replacement candidates

A HOLISTIC APPROACH FOR DEALING WITH THE LONG-TERM HEALTH EFFECTS OF THE CHORNOBYL DISASTER

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From the scientific papers presented at this Conference, it is clear that the health effects on the human victims of Chornobyl are extensive and far reaching. There is much more that will be learned in the coming years. In the meantime, what should be done to ensure the health of the children who were exposed to Chornobyl radiation 15 years ago? This paper describes the approach our program in Ukraine is using to deal with this problem.

Beginning in May 1998, the United States Agency for International Development (USAID) has been funding the Chornobyl Childhood Illness Program (CCIP) in Ukraine. It is a collaborative effort of Ukrainian and American health professionals in Volyn, Rivne, Zhytomyr, and Cherkassy Oblasts – four of the regions most affected by Chornobyl radiation fallout. The purpose of the CCIP is to assist the Government of Ukraine to screen a target population of adolescents who were alive or in utero at the time of the Chornobyl explosion. To date, over 50,000 individuals have been screened for thyroid cancer by physical examination and ultrasonography and for psychosocial problems using the Children's Depression Inventory (CDI).

Each of the four participating oblasts has established a Ukrainian-American Health Center (UAHC) in the oblast capital. These Centers are staffed by a part-time director, who is a physician, and a full-time secretary. The UAHC office is equipped with a computer, communications equipment, furniture, and a library. A mobile unit comprising a van, a Hitachi ultrasound, a Sony image recorder, and a laptop computer have been provided to each UAHC. The mobile van is staffed by a physician/ ultrasonographer, three psychologists, and a computer operator /driver.

Presented at the Third International Conference "Health Effects of the Chornobyl Accident: Results of 15–Year Follow-up Studies. Kiev, Ukraine June 4, 2001

The mobile unit staff have received instructions on the purpose and scope of the CCIP. While the ultrasonographers were all experienced in the use of the Sony and Hitachi equipment, they were given additional training to ensure standardization in the use of the ultrasound and the interpretation of its findings. Likewise, the psychologists received training on the administration and interpretation of the CDI. The CDI itself was translated into Ukrainian and pretested on a sample group with the same demographic characteristics as the target population.

The group of adolescents who are being screened live in the more heavily contaminated raions of the four participating oblasts. Arrangements are made with school authorities to perform the screenings throughout the school year and at summer camps during the school vacations.

The CCIP will soon establish a fifth Ukrainian-American Health Center in Kiev. Its mobile unit will screen in the Kiev Oblast as well as in other oblasts which experienced high levels of radiation fallout. This mobile team will also conduct screening examinations among two groups of adolescents who live in Slavutych, a town built after the nuclear accident to house those who worked in the Chornobyl Power Plant. The one group will include subjects who, as infants and children, lived in the contaminated zone at the time of the Chornobyl accident. The other will include adolescents who lived in areas that were not affected by the Chornobyl disaster but whose families moved to the area to work in the Chornobyl Power Plant after the accident. This latter cohort will serve as a comparison group for our study.

At the mobile teams' screening sessions, each individual is given an identification number and is asked to provide basic demographic data. The ultrasonographer/physician palpates the subject's neck and then performs the ultrasound examination. If any abnormality of the thyroid is found, the ultrasound image is saved on the local UAHC's image recorder. This image is transmitted to the CCIP head office in Kiev. A sample of these images are periodically reviewed by the CCIP's pediatric endocrinologist from the United States. In addition, all individuals with an abnormality are referred to an oblast endocrinologist for further diagnosis and evaluation, including fine needle aspiration and tests of thyroid function and antibodies if necessary. Any individual with evidence of thyroid cancer is sent to the Institute of Endocrinology and Metabolism in Kiev for surgery and follow-up treatment.

After being seen by the mobile team ultrasonographer, the CDI test is administered to adolescents in groups of 10-15 by one of the mobile team psychologists. Those who are found to have evidence of severe depression or suicidal tendencies are given immediate crisis intervention counseling by a psychologist. Most of these adolescents are then referred to the local school psychologist, a raion or oblast level psychologist, a mental health professional, or a social services support agency for further consultation, counseling or support.

As of April 2001, the CCIP has examined 51,412 adolescents of whom four have been found to have thyroid cancer – an incidence of 1 in approximately 13,000. All four

have had surgery to remove their thyroid gland and are currently receiving thyroxin therapy.

Of those who were examined by ultrasound, an additional 983 have solitary and 346 have multiple solid nodules.

Fifty thousand eight hundred and three (50803) adolescents have been screened for depression. On average, 14.4 percent have been found to have depressive disorders. In many poor communities, however, this problem affects as many as 30 percent of those examined. Out of all adolescents screened, four hundred and eighty three (483) expressed suicidal intentions of whom 90 had a history of attempted suicide. Among children identified as having psychosocial abnormalities, 15 percent had both depressive disorders and thyroid gland pathology. Overall, 18.3 percent of adolescent screened received crisis intervention counseling by the mobile team psychologists.

Specific details regarding the results of CCIP's thyroid screening program are described in an abstract prepared by our colleague Professor Thomas Foley of the University of Pittsburgh and Children's Hospital. The results of the psychosocial screening are shown in an abstract by our Ukrainian colleague, Dr. Irina Grishayeva. Both abstracts are included in the Special Issue of the International Journal of Radiation Medicine, 2001, 2:1, 2.

During this conference, several of our distinguished colleagues described strategies for countermeasures after a large scale radiation accident. The preliminary results obtained from our CCIP Program indicate that in addition to taking emergency countermeasures immediately following a nuclear disaster, there are important long-term health consequences which must be addressed.

We are particularly concerned about the individuals who have solitary and multiple nodules and those with evidence of depression. At this time, we cannot predict how these health problems will evolve. But it is essential that these individuals continue to be screened for an indefinite period and that they have ready access to appropriate health care during this time.

The following is a description of the elements of the holistic medical, public health, and psychosocial approach which we have developed in the CCIP to care for the long-term health problems of the target population of child and adolescent victims of Chornobyl in Ukraine:

1. **Identify the target population of children at highest risk.** Oblast, Ministry of Health and Ministry of Emergencies officials identified the raions which received the highest amount of radiation fall-out. A list was prepared of all children and adolescents in these raions who were alive or in utero at the time of the Chornobyl accident.

2. **Arrange for the screening of children for thyroid and psychosocial abnormalities.** Screening is done in the selected raions during times when the target population is readily available so that no individuals at risk are missed. Since many of the contaminated areas in Ukraine are rural, we chose to utilize mobile units to reach the target population at local schools and summer camps.

3. **Assign a patient registration number to each individual to facilitate follow-up care.** Because the children and adolescents exposed to radiation will need to be followed for a long period of time, we are using a uniform patient identification method. In Ukraine, we adapted the system developed by the United States/Ukraine/Belarus Joint Research Study on Biomedical Effects of the Chornobyl Reactor Accident sponsored by the National Cancer Institute of the United States National Institutes of Health. This number is assigned at the time of the first screening examination.

4. **Train personnel in screening methodologies.** The UAHC ultrasonographers involved in the CCIP were selected because of their previous experience in the examination of the thyroid gland. The only additional training they required was a short course at the Institute of Endocrinology and Metabolism to ensure standardization in the examination of the thyroid gland and reporting of thyroid abnormalities.

   While psychosocial problems are not uncommon following natural or man-made disasters, few countries have personnel who are trained in post-traumatic stress and related disorders. In Ukraine, our mobile team psychologists were given intense one-week courses in the diagnosis and management of depression and related psychosocial disorders including crises intervention.

5. **Develop a computerized database to track the target population.** This database is used to follow individuals who have been screened, especially those with abnormal findings from the ultrasound and CDI evaluations. This database is also designed to track persons referred for additional diagnostic and therapeutic procedures. It is maintained at the oblast level near where the target population lives, and also at the national level to ensure that an individual who moves is not lost to follow-up.

6. **Develop a referral system of providers to ensure diagnostic support and definitive care.** We have developed a network of raion and oblast endocrinologists and mental health professionals to whom referring physicians and psychologists can send patients with abnormalities discovered at screening. The names and addresses of these health care providers are incorporated into the database to facilitate referrals and to ensure that feedback reports are sent to the referring physicians or psychologists.

7. **Ensure program sustainability.** The long-term follow-up program described here will require that the government allocate sufficient resources or find donors

to help it to track and care for radiation accident victims. In a country with limited resources, such as Ukraine, the continuity and sustainability of this program may be difficult. Local non-government and non-profit organizations will need to be identified to assist with this effort. But international donor support will most certainly be required.

In summary, the health aftereffects of a Chornobyl disaster will be a problem for decades to come. This is one of the important messages of the Third International Conference "Health Effects of the Chornobyl Accident: Results of 15-Year Follow-up Studies". The results of the research studies presented at the Conference will help the world to better understand the health consequences of a nuclear accident. At the same time, it is the responsibility of the international community of scientists and health professionals to look at ways to deal with these health problems over the lifetime of those exposed to radiation.

As we learn more about the health consequences of nuclear accidents, it would be appropriate for each nation to prepare both short-term and long-term strategies to deal with the health problems of the victims of future disasters. The holistic medical, public health, and psychosocial approach which has been developed in Ukraine for the child victims of Chornobyl may be a model which other countries may wish to consider.

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Thyroid Screening of Children at High Risk for Thyroid Neoplasia after the Chernobyl Accident - A Preliminary Report. Foley TP Jr., Contis G, Vashchilin G, Rak S, Borisov GI, Kirienko L, Mykulske HT, Dumanovska MV, Levchenko PU, Galinsky YY. Pittsburgh PA, USA, Arlington VA, USA, Rivne, UA, Lutsk, UA, Cherkasy, UA, Zhitomir, UA.

Introduction. Four years following the Chernobyl power plant disaster that began on the 26th of April 1986, the number of cases of thyroid carcinoma began to increase [Kazakov et al, 1992; Baverstock et al, 1992]. The number of cases continued to increase for several years and remains 100-fold or greater than the incidence in the United Kingdom (UK) and the United States of America (US), which is approximately 0.5 to 1 case per million children per year (Harach HR, Williams ED, 1995; Foley TP Jr, 2001). Furthermore, the youngest children at the time of exposure to radiation in Belarus and Ukraine had the highest incidence of thyroid carcinoma. The highest incidence was reported among children who were *in utero* and beyond eleven weeks gestation at the time of the accident. These cases were reported to have a more aggressive, sclerosing form of papillary thyroid carcinoma (PTC), and often were accompanied by local and distant metastasis [Schlumberger M, Pacini F, 1999; Nyagu AI, 2000; Tuttle RM, Becker DV].

A greater number of cases and an increased incidence of thyroid neoplasia more than four years after the accident compared to data before the accident was reported from the raions and oblasts that received the greatest contamination from radioiodine. Furthermore, many of these areas with greater contamination were known to be endemic goiter regions from iodine deficiency, an effect that enhanced the thyroidal uptake of radioiodines and, therefore, increased the exposure of the thyroid to the radioactive isotopes of iodine [Delange F, 2000]. Those children born in 1987 and later, a time after the decay and disappearance of the radioactive isotopes of iodine from the environment, do not have an increased incidence of thyroid cancer. Thyroid neoplasia in this non-radiation-exposed population is comparable to the incidence in the UK and US.

For the following reasons, the individuals exposed to the radioisotopes of iodine released from the Chernobyl power plant disaster and having the highest risk for thyroid neoplasia are: (1) the fetus whose mother was exposed after twelve weeks of gestation that began after April 26, 1986; (2) children who were six years of age and younger in April 1986; (3) children who lived in

contaminated areas where iodine deficiency was prevalent; (4) children exposed to greater than 5 cGy of radiation.

Mission. The mission of the Chornobyl Childhood Illness Program (CCIP) is the early identification of thyroid neoplasia and other thyroid abnormalities among the estimated 120,000 Ukrainian children who were exposed to high doses of radiation from the Chernobyl nuclear power plant accident on April 26, 1986. CCIP is funded by the United States Agency for International Development in Kyiv (USAID-Kyiv). Early identification of disease – thyroid neoplasia - can be accomplished by thyroid screening programs.

Population: Of the eleven oblasts in Ukraine where there are raions designated as contaminated by the Chernobyl catastrophe, we were advised to initiate screening programs in three oblasts along the northern border between Ukraine and Belarus, and in one oblast south of Kyiv. From west to east, we initiated screening in three raions of Volyn Oblast, six raions in Rivne Oblast, three of eight raions in Zhitomir Oblasts and six raions in Cherkasy Oblast, south of Kyiv. Very soon, we will begin to screen in raions of Kyiv Oblast and Chernihiv Oblast. In each of the four oblasts where screening has been implemented, a Ukrainian-American Health Center (UAHC) was established and now coordinates the program for that oblast. A fifth UAHC has just been opened to begin screening in Kyiv and Chernihiv Oblasts.

Materials and Methods. We considered these options to screen for thyroid cancer among the high-risk populations: (1) physical examination of thyroid gland and the anterior compartments of the neck; (2) thyroid ultrasound; and/or (3) serum thyroid function and tumor marker tests. Physical examination of the thyroid and the neck should be performed annually on all children, especially those individuals who lived in the contaminated areas in 1986. However, the physical examination will not be sufficiently sensitive to detect thyroid cancer in its early stages, or capable of identifying metastatic disease in locations that are not accessible by physical examination. Therefore, the more precise and accurate method to screen for thyroid cancer, thyroid ultrasound, was the method of choice that we selected for the screening protocol for the high risk populations.

The following individuals were selected for routine screening by thyroid ultrasound: (1) males and females with birth dates between 1980 and 1986 inclusive; (2) Individuals who lived in the raions designated by the Ministry of Emergencies and Ministry of Health to be highly contaminated with radioiodine in 1986; (3) those eligible individuals who agreed to participate in the screening program.

The advantages of thyroid ultrasound screening are: (1) identification of thyroid neoplasia prior to clinical presentation; (2) precise identity of space-occupying lesions in the thyroid gland and surrounding tissues; (3) characterization of thyroid lesions as solid, or as cystic with solid components; and (4) a non-invasive diagnostic screening test that is quick and easy to perform, and can be interpreted with accuracy by skilled health care professionals.

The disadvantages of ultrasound to screen for thyroid neoplasia are: (1) the cost of the initial investment and equipment maintenance; (2) the requirement for a reliable power supply to operate the portable thyroid ultrasound equipment without interruptions in rural areas; (3) undesirable false-positive rate for non-neoplastic diseases; (4) the inability to differentiate benign and malignant disease; and (5) the necessity to transport portable equipment to screen mass populations.

Each week, a mobile screening team leaves the UAHC for schools that are pre-assigned in a specific contaminated raion. The team consists of a thyroid ultrasonographer physician, three psychologists and a driver/computer operator. The mobile team is transported in a van that has a Hitachi portable ultrasound with a 7.5 MHz probe for thyroid imaging, a Sony image recorder, an external power supply, and a laptop computer. An endocrinologist will be added to each mobile team in the year 2001. A data manager/driver operates a laptop computer to enter demographic data on each subject who has a thyroid ultrasound screen. Clinical psychologists are trained by CCIP personnel for the evaluation and management of adolescent depression as part of the same mobile screening team.

Each eligible participant has a thyroid ultrasound examination. If the ultrasound image is normal, no further tests are performed. The subject is advised to undergo annual evaluations by a

raion primary care physician. If the thyroid ultrasound is abnormal, the ultrasound image is recorded and later stored on compact disks. Those individuals with diffuse thyroid disease are referred for further evaluation to a raion primary care physician or a raion endocrinologist. Those with solitary or multiple thyroid nodules are referred for further evaluation to an oblast endocrinologist. Thyroid function tests are performed (TSH, thyroid antibodies) and patients are referred for fine-needle aspiration biopsy (FNA biopsy) at an oblast or national center where there is expertise in the FNA biopsy technique and pathologic interpretation of the specimens.

Results: The results of thyroid ultrasound screening between October, 1999 and April, 2001, are summarized in Tables 1, 2 and 3. Of the 51,412 adolescents screened, there are four cases of papillary carcinoma (incidence ~1 in 13,000); 2.6 percent have thyroid nodules, and 7.2 percent have other thyroid abnormalities (Table 1).

Of the 2.6 percent of subjects with thyroid nodules, there are 1.9 percent with solitary nodules, or 74 percent of individuals with nodules. The remaining 26 percent of patients have multiple thyroid nodules and comprise 0.7 percent of the total population screened (Table 1).

To determine the distribution of thyroid nodule size among a screened population, we analyzed the maximum diameter of solitary and multiple nodules among those adolescents screened by the mobile team in the UAHC in Rivne Oblast (Table 3). The great majority of adolescents had nodules less than 10 mm in diameter; approximately 20 percent were individuals with solitary nodules. Twenty percent with multiple nodules were found to have a diameter of 10 mm or greater.

The percentage of adolescents with thyroid nodular diseases does not seem to be greater in the contaminated raions of Zhitomir Oblast, the raions closest to the Chernobyl Power Plant of those we screened, compared to the percentages in the raions of the other three oblasts (Table 3).

Discussion. The use of thyroid ultrasound is an effective, non-invasive, and accurate method to screen adolescents at high risk for thyroid neoplasia in a population exposed to radiation from the Chernobyl nuclear power plant accident of April 26, 1986. The incidence of thyroid nodules and

thyroid carcinoma that we identified by thyroid ultrasound screening compares very favorably with the incidence reported by screening programs in other contaminated regions of Ukraine, Belarus and Russia [Yamashita S, 1999]. These diseases most likely are caused by exposure to the short-lived radioactive isotopes of iodine, though other possible causes may contribute [Nagataki N, et al, 1998].

Though we highly recommend thyroid ultrasound as the screening test of choice to detect thyroid neoplasia in its early stage, there are problems and inconsistencies in the program that require future resolution to optimize screening. Most likely for economic reasons, there are problems with patient and family compliance with appointments for those with ultrasound abnormalities referred to oblast endocrine centers for further evaluation. In addition, there appear to be local variations in the specific indications for FNA biopsy. The ultrasonographers in different regions of the country use various diagnostic terminology and the endocrinologists order a variety of laboratory tests to confirm the diagnosis when single or multiple thyroid nodules are discovered by thyroid ultrasound. We also experienced some inconsistencies in data entry, particularly with reference to diagnostic terminology. The incentive for thyroid ultrasonographers to work on the mobile screening teams has been adversely influenced by per diem reimbursements which are lower than the income that can be generated by ultrasonographers at hospitals and outpatient centers. Changes in reimbursement and initiation of an incentive system already have increased the daily number of individuals who have been screened.

To better understand the data obtained through our thyroid ultrasound screening program, there is great need for controls and comparison populations to be matched with the high risk populations reported in this study. We plan to screen individuals with birth dates between 1980 and 1986 who have no history of exposure to radiation from Chernobyl, but have moved into the contaminated area since 1986. We also plan to screen a control population of adolescents from Ukraine who have had no exposure to ionizing radiation and do not live in contaminated areas. These populations will be evaluated for thyroid neoplasia and autoimmune thyroid diseases. Studies from iodine-sufficient areas in the United States and Japan report an incidence of 1-2% for autoimmune thyroid diseases among adolescents [Inoue M, et al, 1975; Rallison M, et al, 1975], and thyroiditis may be the cause of a percentage of thyroid nodules in the high risk population. Thyroid

nodules in these populations are rare.

Summary.

1. Annual physical examinations of the head and neck to evaluate for thyroid neoplasia and thyroiditis should be performed in every child and adolescent. This is especially important for patients exposed to ionizing radiation, such as the radiation released from the Chernobyl nuclear power plant accident.

2. An initial thyroid ultrasound examination is recommended for those individuals who were exposed as children to ionizing radiation. If normal results are obtained, the patient should have an annual physical examination and a repeat thyroid ultrasound examination every 2 to 5 years. The exact interval for repeat screening is unknown at this time, and will depend on data obtained over the next decade from these high risk populations.

3. Those individuals with benign thyroid nodules after FNA biopsy and clinical evaluation should have an annual ultrasound examination to assess the size and consistency of the lesion(s) in the thyroid.

4. With an apparent increase in autoimmune thyroid disease in the exposed populations, those individuals with an abnormal thyroid gland on ultrasound should be screened for autoimmune thyroiditis and hypothyroidism by the analysis of serum thyroid antibodies and TSH. If the serum TSH is, or later becomes, elevated, L-thyroxine therapy should be initiated in doses of 1 to 2 ug/kg/day to normalize TSH values for age.

Recommendations.

1. Recruitment of control and comparison populations for thyroid ultrasound screening among individuals who were born between 1980 and 1986 is important to compare with the populations exposed to radiation from the Chernobyl accident.

2. Normal iodine nutrition should be restored and maintained in the contaminated oblasts and throughout the affected countries, and monitored by neonatal TSH distribution curves in newborn screening programs for hypothyroidism [Delange F, 2000].

3. The exposed population should be monitored through a single national database for those individuals who enrolled in the thyroid ultrasound screening.

4. A thyroid screening network should be centralized as a national program rather than fragmented into regional programs.

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Tables.

Table 1.

Thyroid Screening in Ukraine: Results from October, 1999 to April, 2001	
Total screened 1999 – 2001	51,412
Papillary thyroid carcinoma	4 (incidence ~1:13,000)
Thyroid nodules	1,329 (2.6%)
Other thyroid abnormalities	3, 172 (7.2%)

Thyroid Screening in Ukraine: Thyroid Nodules	
Thyroid nodules	1,329 (2.6%)
Solitary nodules: *Nodule *Adenoma *Cystadenoma	983 (1.9%)
Multiple nodules	346 (0.7%)

*Multiple nodules

Table 2.

Thyroid Screening in Ukraine: Size of Thyroid Nodules Identified in Rivne Oblast		
Thyroid nodular disease	Rivne Oblast	
n = 305 cases:	Solitary = 224 (73%)	
	Multiple = 81 (27%)	
Nodule size	Solitary	Multiple
<5 mm	19%	15%
5 – 9 mm	61%	65%
10 – 20 mm	18%	20%
>20 mm	2%	9%

Table 3

Thyroid Screening in Ukraine			
Thyroid Nodular Diseases by Oblast			
In Northern Ukraine from West to East and South			
	Nodules	Solitary	Multiple
Volyn	2.0%	1.2%	0.8%
Rivne	4.3%	3.2%	1.0%
Zhitomir	1.7%	1.2%	0.5%
Cherkasy	2.7%	2.4%	0.2%

ABSTRACT. Four years after the Chernobyl Nuclear Power Plant accident, an increase in thyroid cancer was observed in Belarus, Ukraine and Western Russia, especially among children who were *in utero* and to age 6 years in 1986. Exposure by ingestion and inhalation over several days to radioisotopes of iodine [131,132,133 and others] in an iodine deficient population is thought to induce chromosomal rearrangements that constitutively activate mitogenic pathways and result in thyroid neoplasia. Cases of papillary thyroid carcinoma and thyroid adenoma have increased since 1989, and more recently cases of autoimmune thyroiditis are more common.

With funding from the U.S. Congress to the US Agency for International Development/Kyiv (USAID), the Chornobyl Childhood Illness Program (CCIP) was designed as a collaborative effort of health professionals from Ukraine and the US. To detect and treat thyroid abnormalities and depression among an estimated target population of 800,000 children at risk, a holistic public health/medical/psychosocial program was implemented in Ukrainian American Health Centers (UAHC) in each of four oblasts (Rivne, Cherkasy, Volyn and Zhitomir). Four mobile units were equipped with portable ultrasound machines and ultrasonographers to screen for thyroid neoplasia. The mobile screening units operate throughout the year, visiting schools while they are in session and children's camps during the summer.

Results: Through April, 2001, thyroid ultrasound was performed on 51,412 adolescent children with birth dates between 1980 and 1986 living in moderately contaminated raions of Ukraine. The program identified four children with papillary thyroid carcinoma (1:13,000). In addition, 3,172 children (7.2%) had thyroid abnormalities. Of 1,329 (2.6%) with thyroid nodules,, 983 (1.9% of the total) have solitary nodules and 346 (0.7% of the total) have multiple thyroid nodules. The remaining abnormalities include thyroiditis and/or endemic goiter. We are unaware of any false negative cases. Adolescents with diffuse thyroid diseases are referred for further management to raion endocrinologists. Nodular thyroid diseases are referred to oblast endocrinologists who have the capability to measure serum TSH (to determine deficient or excessive thyroid hormone secretion) and fine needle aspiration (FNA) biopsy on nodules with a size >10 mm.
We conclude that (1) a minimal number of tests and resources are needed to identify or exclude thyroid neoplasia in individuals who were exposed to radiation from the Chernobyl accident at age < 6 years; and (2) the frequency of thyroid diseases (7.2%) and thyroid nodules (2.6% of thyroid abnormalities evaluated) are similar to previous reports except from highly contaminated areas. We do not know the frequency of nodular thyroid disease in a control population; the number of thyroid adenomas that dedifferentiate to carcinomas; and how often thyroid ultrasound screening should be performed in high risk individuals who have either normal images or benign nodular lesions on initial examination. We suggest, however, that individuals with thyroid adenomas be screened annually, and those with previously normal thyroid images be screened again every 2 to 5 years until screening data suggest otherwise. A physical examination of the thyroid should be performed annually in individuals who, as children, lived in the contaminated raions between April and July, 1986.

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ATTACHMENT FOUR: SUMMARY OF TRAINING SEMINARS

DATE	OBLAST	TOPIC	NUMBER OF TRAINEES	TRAINEE PROFILE	TRAINERS
February 15 – 26, 1999	Kyiv	Thyroid gland pathologies	2	Ultrasonographers from Volyn Oblast	Institute of Endocrinology staff
March 24-28, 1999	Volyn	Treating post traumatic stress disorder (PTSD): coping with catastrophe; the nature of technological disasters; ordinary, chronic and traumatic stress; anxiety and depression; secondary traumatic stress and self-care for professionals; community development; mental health promotion	25	UNESCO Community Development Staff	M. Christensen, A. Pressley (Drew University) I. Grishayeva (CCIP)
March 29-April 4, 1999	Volyn	Basic training in mental health promotion: personal warmth, active listening, empathetic response, how to recognize mental illness, to whom to refer children	25	Ukraine Red Cross Staff	M. Christensen, A. Pressley (Drew University) I. Grishayeva (CCIP)
May 17 – 21, 1999	Volyn	Counseling of children and families	37	School psychologists	R. Chazin, M. Hanson, C. Cohen (Fordham University) I. Grishayeva (CCIP)
July 1 – 2, 1999	Kyiv	Screening referral and counseling of children with depression; personality theory; psychopathology; personality assessment; clinical supervision	18	Clinical psychologists	A. Pressley (Drew University) I. Grishayeva (CCIP)
July 5 – 9, 1999	Rivne	Screening and referral, basic skills in counseling, crisis intervention, suicide prevention, support groups	29	Social Services for Youth Staff	A. Pressley (Drew University) I. Grishayeva (CCIP)
September 6 – 7, 1999	Volyn	CCIP Management Conference	50	UAHC Staff and mobile screening teams	
September 26 – 30, 1999	Zhytomyr	Counseling theory and practice, group work, case management	32	Follow-up training for UNESCO Community Development Staff	M. Christensen, A. Pressley (Drew University) I. Grishayeva (CCIP)
October 1 – 5, 1999	Zhytomyr	The art of mental health promotion, group work, working with drug addicts	14	NGO leaders	M. Christensen, A. Pressley (Drew University) I. Grishayeva (CCIP)
October 19-20, 1999	Volyn	Techniques on how to recognize problems among school children that may be associated with post-Chornobyl psychosocial trauma including abdominal pain, headache, cough and fatigue	35	School physicians and school health officials	A. Volosevets, S. Krivopostov (National Medical University) W. Schwartz (Children's Hospital of Philadelphia)

November 1 – 5, 1999	Cherkassy	Counseling of children and families	41	School psychologists	R. Chazin, M. Hanson, C. Cohen (Fordham University) I. Grishayeva (CCIP)
February 9 – 12, 2000	Rivne	Counseling children and adolescents, children and cancer, child abuse and domestic violence, play therapy and young children, substance abuse, screening children for depression, group counseling	37	Sanatorium psychologists and UAHC mobile psychologists from four target oblasts	A. Pressley (Drew University) I. Grishayeva (CCIP)
February 14 – 18, 2000	Rivne	Counseling of children and families	45	School psychologists	R. Chazin, M. Hanson (Fordham University) I. Grishayeva (CCIP)
February 20 – 25, 2000	Cherkassy	The art of mental health promotion	37	Social Service for Youth Centers Staff	M. Christensen (Drew University) I. Grishayeva (CCIP)
March 11 – 15, 2000	Zhytomyr	Family systems theory and its application to family therapy and relationship consultation	37	Social Service for Youth Centers staff	W. Presnell (Drew University) I. Grishayeva (CCIP)
March 15 – 17, 2000	Rivne	CCIP Management Conference	50	UAHC Staff and mobile screening teams	
April 5 – 6, 2000	Rivne	Techniques on how to recognize problems among school children that may be associated with post-Chornobyl psychosocial trauma including abdominal pain, headache, cough, common renal problems, anemia and fatigue	70	School physicians and school health officials	A. Volosevets, S. Postipovov (National Medical University) W. Schwartz, M. Norman (Children's Hospital of Philadelphia)
April 7 – 8, 2000	Zhytomyr	Techniques on how to recognize problems among school children that may be associated with post-Chornobyl psychosocial trauma including abdominal pain, headache, cough, common renal problems, anemia and fatigue	80	School physicians and school health officials	A. Volosevets, S. Postipovov (National Medical University) W. Schwartz, M. Norman (Children's Hospital of Philadelphia)
May 23- 25, 2000	Koristan	Advanced counseling theory and practice, group work, case management	25	UNESCO Community Development Staff	Michael Christensen (Drew University)
May 27 - 31, 2000	Zhytomyr	Advanced counseling techniques related to children, trauma, and community mental health promotion	30	Mobile psychologists and paraprofessionals from the local communities	M. Christensen, A. Pressley (Drew University), I. Grishayeva (CCIP)
June 12 - 16, 2000	Zhytomyr	Counseling of children and families	40	School psychologists and mobile psychologists	R. Chazin, M. Hanson (Fordham University) I. Grishayeva (CCIP)
July 10 - 14, 2000	Cherkassy	Advanced counseling techniques related to children, trauma, and community mental health promotion	30	Mobile team psychologists and paraprofessionals from the local communities and sanatoriums	A. Pressley (Drew University), I. Grishayeva (CCIP)

October 5 - 8, 2000	Cherkassy	Marriage and family therapy. Topics included substance abuse, neurological disorders, and speech problems with young children.	36	Psychologists and professionals from local communities and sanatoriums	A. Pressley (Drew University), I. Grishayeva (CCIP)
October 9-10, 2000	Zhytomyr	Data analysis and presentation techniques.	18	Mobile Team psychologists	A. Pressley (Drew University), I. Grishayeva (CCIP)
October 10 -12, 2000	Zhytomyr	CCIP Management and Sustainability Conference.	50	UAHC and mobile screening team staff	
October 13, 2000	Zhytomyr	Advanced techniques on how to recognize problems among school children that may be associated with post-Chornobyl psychosocial trauma including abdominal pain, headache, cough, common renal problems, anemia and fatigue.	50	School physicians and school health officials	A. Volosevets, S. Postipovov (National Medical University) W. Schwartz, (Children's Hospital of Philadelphia), T. Foley (University of Pittsburgh)
October 16 - 17, 2000	Cherkassy	Advanced techniques on how to recognize problems among school children that may be associated with post-Chornobyl psychosocial trauma including abdominal pain, headache, cough, common renal problems, anemia and fatigue.	45	School physicians and school health officials	A. Volosevets, S. Postipovov (National Medical University) W. Schwartz, (Children's Hospital of Philadelphia), T. Foley (University of Pittsburgh)
October 30 - November 3, 2000	Zhytomyr	Advanced counseling techniques related to children	35	School teachers and officials, social workers, and psychologists	R. Chazin, M. Hanson (Fordham University) I. Grishayeva (CCIP)
April 26 - 27, 2001	Kiev	CCIP Management and Sustainability Conference.	10	UAHC Directors, Secretaries and CCIP Kiev Staff	
June 10 - 14, 2001	Zhytomyr	Brief Treatment for Depressed Adolescents	35	Health Professions from the four Oblasts	R. Chazin, M. Hanson (Fordham University) I. Grishayeva (CCIP)
July 2 - 6, 2001	Zhytomyr	Training of Community Leaders so that they may Provide Mental Health Services to Rural Areas	30	Community Leaders	A. Pressley (Drew University), I. Grishayeva (CCIP)
July 7 - 9, 2001	Kiev	Reinforcement Training for Mobile Psychologists	20	Mobile Screening Psychologyist	A. Pressley (Drew University), I. Grishayeva (CCIP)
		Total	**1,118**		